

- B¹
coref.
Sub.
C¹
2. (Amended) An isolated polynucleotide selected from the group consisting of:
- (a) SEQ ID NO:19;
 - (b) SEQ ID NO:19, where T can also be U; and
 - (c) fragments of a) or b) that are at least 15 contiguous bases in length and that will hybridize to DNA which encodes the amino acid sequence of SEQ ID NO:28; wherein the isolated polynucleotide encodes a thermostable phosphatase, or an enzymatically active fragment thereof.

- Sub.
C²
5. (Amended) An isolated polynucleotide encoding a thermostable phosphatase, or an enzymatically active fragment thereof, comprising a polynucleotide having at least 70% identity to a member selected from the group consisting of:
- (a) a polynucleotide encoding an enzyme encoded by the DNA contained in ATCC Deposit No. 97379, wherein said enzyme is obtained from *Ammonifex degenesii* KC4;
 - (b) a polynucleotide complementary to the polynucleotide of (a); and
 - (c) a polynucleotide comprising at least 15 contiguous bases of the polynucleotide of (a); wherein the polynucleotide has thermostable phosphatase activity.

- Sub.
C³
10. (Amended) A thermostable phosphatase of which at least a portion is encoded by a polynucleotide of claim 1, and which is selected from the group consisting of:
- (a) a thermostable phosphatase comprising an amino acid sequence which is at least 70% identical to an amino acid sequence as set forth in SEQ ID NO:28; and
 - (b) a thermostable phosphatase which comprises at least 30 contiguous amino acid residues of the enzyme of (a).

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*See
b3 c3
cont.*
(Amended) An enzyme of which at least a portion is encoded by a polynucleotide of claim 1, and which is selected from the group consisting of:

(a) a thermostable phosphatase comprising an amino acid sequence selected from the group of amino acid sequences set forth in SEQ ID NO:28; and

(b) a thermostable phosphatase which comprises at least 30 contiguous amino acid residues of the enzyme of (a).